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Street-trees.

ONE can hardly think of a tree planted in the border of a city street without some feeling of pity. The air in which its leaves grow is polluted with dust and smoke, which impede their healthful action, and the soil in which it stands is often sterile, usually paved over, so as to prevent sufficient moisture from getting to its roots, and this aridity is intensified by sewers which hurry the water away as quickly as possible. In the majority of cases no attempt is made to protect it from horses which gnaw its bark, or insects which devour its foliage, and even if the tree survives these hardships it will be mutilated by telegraph linemen or amateur surgeons who will lop off its limbs, and thus invite the attacks of various fungi which will soon carry decay to its heart. Of course, the very hardships to which a street-tree is subjected ought to suggest the greatest care in selecting promising individuals of the species which have proved the most able to endure uncongenial surroundings, which means that only carefully grown nursery-trees of the best form and habit should be planted in the most approved manner in the richest soil that can be secured. But, in spite of all that has been written on the subject, we rarely find that the original work of selecting and planting has been done in a way that is anything like satisfactory.

These things have been said over and over again, so that we feel like making an apology to readers for once more repeating such elementary truths. But what we have seen within a few days past gives evidence that instructions can hardly be given too frequently or too fully. Through a neighboring city and its suburbs for a distance of more than a dozen miles a macadamized pleasure-drive has lately been constructed. Advertisements for proposals to plant the borders of this road with Maples or Poplars were made, and the contract was let to the lowest bidder, who agreed to furnish trees from ten to twelve feet high, to dig circular holes three feet in circumference and two and a half deep, to fill these holes with good loam and plant the trees properly in this fertile soil for eighty-five cents a tree. Of course, it is not possible to buy good trees and plant them properly for that sum. As a matter of history, the trees planted for the city were of the required height and trunk diameter. A band of Italians dug holes of full contract dimensions, and then, in most cases, enough good soil to honestly fill them was dumped beside them. The trees were then distributed, one being laid by each hole, and it usually remained lying and drying in the sun for several hours, often for a whole day. These trees were mostly Cottonwoods and White Maple, both of which will endure a good deal of hard usage without dying outright. They were generally bare poles with two or three large prong-like roots a few inches long, and no small roots whatever. They were set up in the mold, and this was trodden firmly about them, but they were left without any stakes or guards. Where the holes were made in the hard pan the first heavy rain saturated the soil in the tight basin, and it became in many cases as soft as porridge, so that the slightest touch would tilt over the trees, and, although they have only been planted a month, a large per cent. of them lean more or less from the perpendicular. Most of them are dead at the top, and are putting out a few leaves along the trunk and larger branches. If the season is not too dry many of them will survive—that is, they will not die outright, but will linger out a sickly existence. Of course, there is no hope that any considerable portion of them will ever develop into noble and uniform specimens befitting the stately character of this avenue.

The utterly disreputable character of this work from the very beginning is emphasized by half a dozen trees along this same boulevard, where the owner of the land received permission to do his own planting. He made excavations six feet square and three feet deep, and filled them in with good soil in the early autumn, heaping up this soil to allow for its settling. After a winter of freezing and thawing, this soil had become firm and compact. Norway Maples, with well-formed heads, good roots and uniform size, were bought from a reputable nursery and properly planted the next spring. They were surrounded with a wire netting, and they have now passed through one trying summer and winter. This year they are making a vigorous growth, and stand as an object-lesson to show what the street might have been if intelligent care had been bestowed in making and carrying out the original contract. It is never worth while to plant street-trees at all unless they are planted in this way. The first essential quality of a good street-tree is the beauty of health and vigor. It is better to have no trees at all than to have those which are doomed to disease and premature death.

Of course, in formal planting like this only one variety should be used. The beauty of a country roadside is enhanced by the diversity of its growth, where constant change of form and color gives ever-renewed pleasure to the wayfarer. But when trees stand like a row of columns between parallel lines of buildings, the true formal and architectural effect can only be secured by continued repetition. It is this uniformity which makes an avenue of American Elms so effective. It is not the beauty of a single tree which causes this charm, but it is the multiplied effect of a thousand units which combine to make this a long colonnade supporting its Gothic roof. Of course, the American Elm is not the only tree which can be used to advantage, for in a different way an avenue of stately Tulip-trees may be quite as beautiful, while a row of Pin Oaks would have an effect distinctly their own, but unexcelled in grace. If all these trees were mingled together the effect would be dissipated and lost, as there would be no continuous line extending through the whole vista to give it unity of expression and consistency of purpose. This incongruity would be seen at once, and it would be exaggerated with each succeeding year, not only as the trees vary in rapidity of growth, but their peculiarities of form and size and expression would grow more striking and more contradictory every year.

The sum of the matter is that every city should plant its own trees as much as it should pave its own streets. The work, of course, should be superintended by experts, who, to do the best work, should have a municipal nursery, as

the commissioners have in Washington, who grow the trees which they plant, and can arrange to have them in suitable quantities and of the proper form and size at the time when they are needed. An expert commission would take care to plant the trees in a sufficient quantity of good, well-settled soil. They would set them far enough apart to give each tree an opportunity for its best development; they would water them and mulch them until firmly rooted; they would prune them properly and guard them carefully from all injury by man and beast, realizing that a healthy and vigorous tree is less liable to suffer from insects and disease than one which has been mutilated and enfeebled in any way. If we compare a street properly planted with another, along whose curb a row of spindling saplings from the woods have been carelessly set, we shall realize that the greater portion of the money which has been spent in planting street trees in this country has been worse than wasted.

Among the new tenement-house laws for this city, recently passed at Albany as a consequence of the work of the Tenement-house Investigating Committee, of which Mr. R. W. Gilder was the chairman, none are more important than those which relate to the speedy establishment of small parks in the most crowded districts of New York. One bill decrees that the Mulberry Bend Park, the East River Extension, and St. John's Cemetery Park, the formation of which was determined upon some years ago, shall at once be carried to completion. Another bill provides for the expenditure of $3,000,000 for new small parks in the East Side district lying south of Fourth Street and east of Catherine Street and the Bowery—the most densely populated region in the known world, and at present wholly devoid of open areas or green leaves. A part of each park here established must be finished as a playground; and the law permits school-houses with playgrounds, as well as public baths, to be erected within the opened areas. A third bill provides that "hereafter no school-house shall be constructed in New York without an open-air playground attached to or used in connection with the same." Consequently, the Board of Education, in purchasing grounds for new schools, has begun to buy additional strips of land for playground purposes, while the Board of Education, the Health Board and the Park Commissioners are already in consultation in regard to the best sites for the East Side parks.

These laws show a wholesome advance in public sentiment, and they indicate that the people who direct the thought and action of the city have come to believe that public parks are quite as essential to the health and comfort and morals of the city as a pure water-supply or a good system of sewage, and that a civilized community can no more flourish without them than without hospitals, libraries, museums, colleges and churches.

Some Unusual Androgynous Flower-clusters.

In the last volume of Garden and Forest some notice was taken of the occasional monœcious or polygamous character of the flowering of Poplars and Willows. Androgyny, or the occurrence of both staminate or pistillate flowers together on the same spike, when normally they are separate, is much more common among Willows than is generally supposed, and there are numerous references to it in botanical literature dating back very many years.

It may be worth while to record several observations of variations from the normal habit of flowering among several other kinds of trees. Records of such cases are by no means new, and some occurrences of this nature are given in Dr. Maxwell T. Masters' celebrated work, *Vegetable Teratology*, published by the Ray Society, of London, in 1869. Among monœcious plants it is a common thing to find young trees bearing only male or female flowers, but both kinds of flowers are generally produced as the trees grow older. Abnormal development of the flowers is undoubtedly sometimes brought about by peculiar and unusual conditions in the situation and surroundings of the plant or in circumstances which affect some portion of it. Often, however, no cause is apparent for any unusual development in blossoming.

Pinus heterophylla (Cubensis).—The Pines are monœcious, the clusters of pollen-bearing flowers being commonly produced at the end of the growths of the previous season or about the bases of the new shoots, while the pistillate flowers or young cones are usually borne at or near the extremities of the young growths of the season on the longer more vigorous branches and higher up on the tree. Dr. J. H. Mellichamp, a careful observer, at Bluffton, South Carolina, has found large numbers of androgynous flowers on Pinus heterophylla. The male flowers or catkins are ordinarily from an inch to an inch and a half in length when fully developed, and the female flowers or cones are from about three-eighths to half an inch long when in condition for fertilization. In the androgynous specimens male catkins or flowers of normal proportions bear on their tips well-developed female flowers or cones of about the ordinary size. There is a marked constriction at the point of connection. In the phyllotaxy or arrangement of the scales, and in every other feature, the flowers of each kind appear perfectly normal. The female flowers probably become properly fertilized, but they wither and dry off with the male portion, and none have been known to develop into mature cones. Regarding this peculiarity in P. heterophylla, Dr. Mellichamp writes: "I first noticed this peculiar condition in February, 1893, again in 1894, and now again in 1895, all on the same tree. The tree is a small one, but of good girth, growing on an exposed point of land on May River. It is about twenty-five or thirty feet high, and has been exposed to fire and the submerging of the surrounding land by salt-water in the last great storms, but this was after I first noticed the bisexual flowers in 1893. The tree stands alone, and seems quite vigorous. The abnormal flowers are found chiefly on the lower and middle branches in the proportion of, perhaps, one-tenth of the abnormal to the normal flowers." Since writing the foregoing, Dr. Mellichamp has sent word that he has found another tree of P. heterophylla bearing androgynous flowers, this tree being larger than the one first noticed. Since this note of androgynous flowers on Pinus Cubensis was written, we have received from Dr. H. Christ a notice of the same thing, based upon Dr. Mellichamp's observations and specimens. It was published by Dr. Christ in *Le Bulletin de la Société Royale de Botanique de Belgique*, xxxiii., deuxième partie, pp. 88 92.

Picea Canadensis (alba).—During several seasons two White Spruce-trees, growing on rather poor gravelly soil, have been observed to bear a number of androgynous flowers among innumerable normal ones of both kinds. These androgynous flowers are about of the normal size, and the apical portions of the spikes are occupied by the female flowers or little cones, while the male organs are on the lower or basal ends. In some specimens the male flowers take up fully two-thirds, or even three-fourths, of the spike, leaving only a short few-scaled female flower at the tip; in other specimens the length of the catkin is divided pretty evenly between the two sexes. There is no noticeable constriction or dividing line where the two sexes adjoin. In a flower collected from a third tree this season the male scales extend up among the female scales much more on one side than the other, and the two kinds of scales appear spirally continuous. None of these androgynous flowers have been known to develop mature cones. Somewhat similar cases have been recorded by other observers as noticed on Picea Canadensis, P. excelsa and Larix larcina (under the synonym of L. microcarpa), and are referred to in Dr. Masters' work already mentioned. On the trees under notice the androgynous flowers are borne on low branches within easy reach, and these branches are somewhat affected by the cone-like galls of chermes.

Betula papyrifera.—Our Birches are monœcious, the male flowers, as partially developed catkins, being con-

spicuously exposed during the winter, the female aments being hidden within scaly buds, and only appearing with the renewal of growth in spring. In the Arnold Arboretum a Canoe Birch, Betula papyrifera, in its flowering season in the spring of 1894 produced a female ament two-thirds of the apical portion of which was covered by poorly developed anthers. No other ament was found similarly affected. Dr. Masters refers to androgynous catkins on Alnus fruticosa as observed by C. A. Meyer.

QUERCUS IMBRICARIA.—Our Oaks produce the male flowers in catkins from buds on the twigs of the previous season's growth, and the female flowers in the axils of leaves on the new growths in spring. During the flowering season of 1894, Professor Sargent found Quercus imbricaria bearing apparently fairly well-developed female flowers among the staminate flowers on male catkins. Of course, these female flowers never developed farther, but fell with the male catkins when the latter had shed pollen and withered. These flowers were found in the Arboretum on a vigorous tree introduced from farther south, as the species is not indigenous in New England.

MORUS RUBRA.—The flowers of the Mulberries are produced in catkin-like spikes, the male and female usually described as in separate spikes, often on separate branch-

Fig. 33.—Some Androgynous Flower-clusters.
1. Picea Canadensis. 2. Pinus heterophylla. 3. Betula papyrifera.

lets or branches of the same tree, or on separate trees. It is not uncommon for both male and female flowers to appear on the same spike. This condition has been frequently noticed on the Red Mulberry growing in the Arboretum, also on the introduced Morus alba or White Mulberry. The flowers of both kinds seem well developed, but no observations have been made as to whether such spikes matured fruit, as they may when female flowers predominate.

The accompanying figures, from drawings by Mr. C. E. Faxon, represent androgynous flowers of Pinus heterophylla, from Dr. Mellichamp's specimens, of Picea alba and Betula papyrifera.

Arnold Arboretum. *J. G. Jack.*

Two Wild Vegetables of Merit.

IT is a well-known fact that many of our fruits and vegetables have been developed from plants which in their wild state promised little. These wild products, compared with the results of centuries of cultivation, look so uninviting that we wonder that any attempt to improve them should ever have been made. Naturally, most of our esculent plants are of European origin. It may be true that the eastern hemisphere was favored with a greater variety of food-furnishing plants than the western; as a matter of fact, however, the wild forms found there are in many instances positively inferior to those of the western continent. In many cases, it must be confessed, we are too far behind in the race to make it wise to neglect what our ancestors have gained, and begin with our wild plants where they began with theirs centuries ago.

Considerable attention has been and is still being given to some of the wild fruits of our country. In fact, we have only to look at the great Black Raspberry and Blackberry fields of New York or the Plum-orchards of the west to see illustrations of fruits which have been known to cultivation only within comparatively recent years.

Not much attention seems to have been given to the introduction and improvement of native vegetables, but there are undoubtedly species which are well worthy of trial in our gardens. One of these native plants, which is already gathered from the fields and used to a considerable extent in the west, is the Wild Lettuce or Lettuces, for, probably, more than one species is used indiscriminately. Both Lactuca Canadensis and L. Ludoviciana are common on the plains, but the latter is the more abundant about Lincoln. These are gathered and sold in the markets here in very considerable quantities in early spring-time, being chiefly used for greens. They fill an important place for this purpose, for they come in advance of Spinach, and when no other greens are offered in the markets. Whether these Lettuces possess advantages over the Dandelion in cultivation it is not yet possible to say. It seems quite likely, however, that they would better withstand the heat and drought of the summers on the plains. Whether they will take kindly to cultivation, how and when to sow the seed for best results, and other details, must all be learned by trial. It is not likely that either of these species can overtake the cultivated one as a salad-plant, but the leaves are very tender under favorable conditions, though they have a slightly bitter taste. They are sometimes used in combination with potato or other salads, and by some are preferred to ordinary lettuce. Should they withstand the winters in cultivation as well as they do in the wild state, they would have the advantage of being earlier than ordinary Lettuce grown outside.

Another plant apparently worthy of attention is the Ground Plum, or Buffalo Pea of the plains, Astragalus crassicarpus. This is found abundantly in the draws or low grounds of the unbroken prairie. The plant is a perennial, apparently perfectly hardy and very productive. The fruit resembles gooseberries in size and general appearance. It is borne in numerous clusters very early in the season. It was frequently used by the early settlers when traveling across the plains in wagons in early days, but seems to have largely passed out of use. This could hardly be otherwise, for it is only found in the unbroken prairie. When cooked like string-beans the fruit forms a very acceptable dish. It seems to combine something of the flavor of beans, peas, asparagus and salsify. None of these are very pronounced, however, and it fails in quality rather from a lack of flavor than from any strong or disagreeable taste of its own. Many of our common vegetables, however, have not much in themselves to commend them, and their quality comes rather from the flavor imparted by substances added in their preparation. The fruit requires less time to cook than string-beans, and longer than green peas. If allowed to grow too large the pods soon become tough, and the season, at best, is probably a short one, though it might, through cultivation, reach a larger size before becoming tough. The chief point which recommends the plant for cultivation is the time at which the fruits are

ready for use. Some of the crop from which these opinions are formed was ready to be gathered on May 7th. Even then a few of the fruits were too large to be at their best, although this was far in advance of the season for beans or peas. In fact, the only vegetable which would at all interfere with it is asparagus. This can hardly be an objection, however, for there would certainly be room for two such vegetables at the same season, especially as they are so different in general character.

Experiment Station, Lincoln, Neb. *F. W. Card.*

Foreign Correspondence.

London Letter.

Cultivated Ferns.—A list of all the Ferns cultivated in the Royal Gardens, Kew, has just been issued, and may be obtained at the Gardens, price sixpence. It contains the names and synonyms in use in gardens of 1,116 species and well-marked varieties of Ferns and ninety-seven of Fern allies (Lycopodium, Selaginella, etc.); it also contains, in the form of an appendix, a list of nearly six hundred cultivated and feral varieties of British Ferns, the Kew collection of these being exceptionally rich. There is no collection of tropical and temperate Ferns equal in extent to that at Kew, where they have been a prominent feature for at least fifty years. The history of the collection is told in an introduction to the list, which will have a special value for cultivators of Ferns, than which no natural order has a more complicated and irritating nomenclature. The arrangement of the names in the Kew list is alphabetical, and the classification followed is that of Hooker and Baker's *Synopsis Filicum*, the only standard work on the order.

Authorities and countries are given in each case, so that the list will have a value for botanists as well as for cultivators. It is earnestly hoped that the nomenclature of this and similar lists of garden plants, now being prepared with considerable care and pains at Kew, will be adopted by cultivators, at any rate, so that we may all have something like uniformity in regard to the names of cultivated plants. Lists of the Hardy, Herbaceous and Alpine Plants, and of the Orchids, are now in course of preparation, and will shortly be published, the intention being to have in time a complete catalogue of the whole of the vast collection of living plants at Kew, a rough census of which gives the total number as, approximately, 20,000 distinct species and varieties. Of course, the price of these lists is merely nominal, certainly not more than covers the cost of printing and paper, the object of the authorities being to place at the disposal of all interested a reliable standard of nomenclature for garden plants.

The Kew Museums.—The contents of the museums of Economic Botany in the Royal Gardens, Kew, are exceptionally rich in plant products of all kinds, their object being "to teach us to appreciate the general relations of the vegetable world to man." There are three separate buildings, one for all Dicotyledonous Plants, another for Monocotyledons and Gymnosperms and the third for specimens of Timber and bulky specimens generally. Museums do not as a rule appeal to the laity, except as places in which to spend a pleasant afternoon, but the Kew Museums have a great attraction for business, especially commercial men, as well as for botanists and horticulturists. The official guide-books to these museums, of which there are three, one for each building, are valuable for the useful information they contain about all sorts of plants and their products. I call attention to them here because the guide to the Monocotyledons and Cryptogams has only lately been published and its contents are of more than ordinary interest. Palms, Scitamineæ, Amaryllids, Liliaceæ, Aroids, Bamboos and Grasses generally, besides, Ferns, Fungi, Mosses, etc., are treated upon, and information about their most noteworthy products is given. I quote the following as a sample paragraph from the hundred pages or so of this valuable little encyclopædia, the price of which, by the way, is fourpence:

"Ivory Nut Palm (Phytelephas macrocarpa).—A plant with a prostrate stem and leaves often 20 feet long, inhabiting the banks of rivers and rivulets in Central America and New Grenada. The fruits are borne in large globular heads, one of which is here shown attached to the stem. As the seeds ripen they become very hard, like ivory, and are, consequently, known as Vegetable Ivory, and are largely used for making coat-buttons, chessmen, and for various other useful and ornamental articles, as well as for artificial snowflakes in theatres." Samples of the stem and many kinds of articles manufactured from the seeds are shown in the cases.

Cattleya floribunda.—Plants bearing this name are offered by L'Horticulture Internationale, Brussels, and M. Linden says it is "the most marvelous new Orchid of recent years." He describes it as a possible natural hybrid between Cattleya maxima and C. labiata, var., having large flowers borne on strong scapes, some scapes bearing as many as twenty-one flowers. Their color is "brilliant dark carmine for the most part," but there are white and other varieties known. The flowering season is from September to December, and as the plants were introduced into the Brussels Nursery on December 30th last, I presume none have yet flowered there, and therefore the description of the flowers has been made by the collector on the spot. C. maxima, one of the suggested parents, is a native of southern Peru and Ecuador; presumably, therefore, this region is the home of C. floribunda. There is evidence of a growing desire among orchidists to give a mongrel origin to as many new Orchids as possible, C. floribunda being a case in point.

Cypripedium, Gertrude Hollington.—This is a gigantic flowered hybrid, of which a plant shown in flower last week by Messrs. H. Low & Co. received a first-class certificate. Its parents are Cypripedium ciliolare and C. bellatulum. It is exceptionally large and robust in foliage as well as in flower, the leaves being nearly three inches wide by seven inches in length, and the petals of the flower are fully one and a half inches wide, creamy white, with purple lines and dots; the dorsal sepal is large and broad, creamy white, with green and purple shading, and the lip is greenish white below, rose-purple above. It was generally admitted to be one of the largest and most striking of the hybrid Cypripediums. It was raised by Mr. Ayling, gardener to Mr. A. J. Hollington, and the raiser of several very handsome hybrids.

London. *W. Watson.*

Plant Notes.

Lilacs.

THE past year has been one of the most severe ones which plants in the eastern United States have had to endure for a long time, and it serves to emphasize the good qualities of several shrubs which have not previously had to submit here to exceptionally trying climatic conditions. All the species of Lilac in our gardens are in perfect condition this year, the late-flowering Syringa Japonica, S. Pekinensis, S. Amurensis and S. villosa are covered with flower-buds as they have never been before, and the charge that has been made against Syringa Japonica and S. Pekinensis of being shy bloomers cannot be sustained. It is now apparent that these noble plants only require age to enable them to produce flowers in the greatest profusion. Of the early-blooming species of Lilac, Syringa oblata has produced more flowers this spring than it has for many years. It will be remembered that this northern China plant is the earliest of the Lilacs to flower; that its flowers, which are borne in short, broad, compact clusters, are pale purple or mauve color, and very fragrant; that the leaves are not attacked by the mold fungus, which whitens here in summer those of the common Lilac, and that in the autumn they turn to a most beautiful deep vinous-red color. A figure of a flower-cluster of this plant was published on page 221 of the first volume of Garden and Forest. This

shrub ought to be better known, and every one who has a northern garden should plant one of these Lilacs. The other comparatively rare and little-known early-flowering Lilac, Syringa pubescens (see GARDEN AND FOREST, vol. i., p. 415, and vol. vi., p. 266), has also bloomed this year as it has never bloomed before in American gardens, the slender stems being often bent to the ground under the weight of the flower-clusters. This species flowers with the Chinese and Persian Lilacs and with the latest of the varieties of the common Lilac, Syringa vulgaris. By some people this is considered the most beautiful of the whole race. The flower-clusters and the individual flowers are smaller than those of other Lilacs, but they excel them all in fragrance, and there is a grace and charm about this plant, which is also a native of northern China, to which none of its more robust relatives can lay claim.

The Lilac season, which twenty years ago lasted a week or ten days, can now be prolonged through six or eight weeks by means of the new introductions which have come to us through the agency of the Arnold Arboretum, and no good northern garden will be complete without representatives of all the species, to say nothing of the new varieties of the old-fashioned Syringa vulgaris which French and German gardeners are turning out every year, and which are plants of surprising beauty and the greatest value. The northern United States, of all parts of the world, is best suited to develop the greatest beauty of the deciduous-leaved trees and shrubs of northern countries, and among them all none are more at home or give greater satisfaction than the Lilacs.

The action of cold or of drought, followed by cold, on plants in certain years is not yet well understood. Correspondents in Boston write us, for example, that the common Barberry, which has become entirely naturalized in eastern New England, has suffered severely during the past winter, old-established plants in fields and gardens being often killed to the ground, while the Laburnum, which is always rather tender, and does not flower well in that latitude one year in five, is now everywhere covered with flower-buds. Native shrubs near Boston have generally suffered as much as exotics, and the dead branches which may be seen in the roadside shrubberies testify to a remarkable combination of circumstances adverse to plant-life.

CRATÆGUS PUNCTATA.—So many of our native Thorns are desirable trees that it is difficult to select any one of them for special commendation. There are, at least, half a dozen species which ought to be in every collection of any size, each of them having a character of its own, and an individual expression which is marked throughout the season. We select Cratægus punctata, sometimes known as the Dotted Thorn, because, as it was seen last week in Prospect Park, Brooklyn, it was, perhaps, the most interesting small tree there. Its widespreading branches stand out mainly at right angles from the trunk so that the deep shadows between the different strata of foliage are generally horizontal, and the head of the tree is often flat-topped. Farther north in Canada these branches sometimes have a spread of forty feet and the trunks are more than three feet in circumference. The best trees in Prospect Park are twenty feet high and broader than they are tall, and just now the corymbs of white flowers borne on the upper side of the level branches give the tree a singularly beautiful effect. Of course, these flowers are abundant, but the clusters do not seem so dense as they are on some other species, nor are they quite as abundant, but the tree is all the more interesting than it would be if the proportion of white to green were greater. This tree is beautiful also in autumn, when its branches are covered with showy fruit, while the foliage turns to a bright orange and scarlet and adds to its attractiveness.

PRIMULA CORTUSOIDES SIEBOLDI.—At this time there is no hardy herbaceous plant that excels this Primrose in the brightness of its flowers. It grows vigorously, and with good treatment increases in size and produces an abundance of flowers each year. It does best in a sheltered situation where it will be shaded from the sun during the hottest part of the day. Mr. Cameron, writing of this flower from the Cambridge Botanical Garden, says that it grows there in a strong, rich, loose loam of a rather damp nature. The flowers are produced on stems eight to twelve inches high, and a single flower measures almost two inches in diameter. The beauty of this plant is lost when only seen with one or two flower-stems. At Cambridge a large clump, measuring half a yard across and bearing fifty or sixty stout stems with large umbels of flowers, shows how effective it can be. It is a strictly herbaceous perennial; the coarsely toothed, ovate leaves die down in the fall and come up again in the spring. The flower is very variable, and a large number of forms have been raised since it was introduced from Japan thirty years ago. One named grandiflora is in flower now, and it is a magnificent plant. Although its habit is the same as that of the type, the flowers are quite distinct, being much brighter and slightly larger. In the fall this Primrose should be covered with dry leaves and a few pieces of board to keep them from being blown away. In spring, whenever there are signs of growth, the covering is removed.

STELLARIA HOLOSTEA.—This is now the best white-flowered plant in the front row of the herbaceous border. When its flowering season is over it looks rather weedy, and it grows so freely that if not kept in subjection it very soon destroys the other low plants growing near it. Nevertheless, it is a good perennial and deserves a place in the choicest borders. The white, star-like flowers measure three-fourths of an inch in diameter and grow in cymes on the stems. The flowers are produced very plentifully and the plants are completely covered with white flowers. When massed together this plant is very effective, and Mr. Cameron suggests that it can be used for a spring bedding-plant when white flowers are scarce.

A NEW IRIS.—We have received from Mr. Gerard flowers of a new Iris, the production of Professor M. Forster, a cross between I. paradoxa and I. variegata. We are not aware that it has been named, but, according to Professor Forster's usual nomenclature, this would be I. Parvar. The plant is especially interesting as a cross between an Oncocyclus Iris and one of the ordinary bearded Irises, with a quite different habit. I. paradoxa, which is rare in cultivation, is one of the dwarfest of Oncocyclus Irises, with narrow rhizomes and quaint purple flowers with a very marked disproportion between the standards and the falls, even for this section, where the falls are always smaller than the standards. I. variegata is the common Iris with large rhizomes. The type has yellow standards and madder-brown or reddish brown falls. The new Iris has a rhizome—short, creeping and thick. The leaves are a foot long, falcate, light green and slightly glaucous. The stems are about a foot and a half tall, and bear two long, flat, oval scapes, the terminal being double-flowered, the lateral having a single one. The standards are only slightly larger than the falls, have beautifully crimped edges, and are of a rich vinous-purple, with a median vein of darker color and white linings on the inner base. The oblong falls, not much recurved, have a deep rich reddish brown lip, and are lined on the edges in the same color on a white ground. The beard is formed of fine hairs of a lighter hue. The fall is covered with very fine hairs, giving it an effect of velvet. The styles are light reddish brown. Altogether it is a flower of rich color and striking beauty. This has been grown by Mr. Gerard two years, and as it has proved to be of vigorous growth and perfect hardiness, it is a welcome addition to the garden. It is not a deciduous variety, and requires none of the special treatment in the way of dryness which the Oncocyclus Irises need.

HEUCHERA SANGUINEA.—This handsome plant of the Saxifrage family is now well known as one of the best small hardy plants introduced in recent years, and much testimony as to the esteem in which it is held has been published in GARDEN AND FOREST, especially since it has been

found to be reliably hardy. It is easily and rapidly increased by the crowns which it produces in abundance, and also by seeds. Growers of seedlings have been rewarded by the production of new forms differing in tone of color and size of flowers. One of the best of these forms, which has been extensively propagated, is known as Splendens. In this variety the color is very intense and the flowers about twice the size of the type. Nothing could be prettier than the arching stems of this plant bearing a row of gem-like flowers of beautiful color. To speak more exactly, it bears along arching stems, on the ends of short pedicels, clusters of three and more flowers, which are of a bright red of the tint known as cerise.

Cultural Department.

The Russian Tree Fruits in America.—I.

ONE who attempts to trace the origin of different varieties of orchard fruits will find the investigation difficult and wearisome. This is not surprising in the case of native fruits, which are usually known and valued for some time in a single neighborhood or town before attracting attention elsewhere. But in the case of imported kinds it would seem that there should be less difficulty. Yet our earliest New England authority, and it is a most excellent and painstaking work, Cole's *American Fruit Book*, credits the Duchess of Oldenburgh Apple to Russia, Red Astrachan to Sweden, and fails to notice either Tetofsky or White Astrachan. Yet it is generally supposed that they were all brought to this country from England at or about the same time. Mr. Cole was the editor of the *New England Farmer*, supposed to be the oldest agricultural newspaper in America; and the importation of these Apples is credited to the Mannings, of Reading, Massachusetts. Inquiry reveals the fact that there are in that town two families of that name, yet not related, and as, by correspondence, I find that one family declines the honor, I am left to the conclusion that the true source of this importation is the family now represented by Mr. J. W. Manning, from whom I received the Tetofsky in 1872. At about the same time I received the Duchess of Oldenburgh from Mr. S. L. Goodale, a prominent horticulturist of Saco, Maine, while the Red Astrachan was sent to me by the great nursery firm of Ellwanger & Barry, of Rochester, New York, at the same time, or a little earlier. This variety, notwithstanding its Russian origin, has not proved hardy against the cold winters of north-eastern Vermont, which is hardly surprising, when it is remembered that Astrachan is the southernmost province of Russia, with a climate, judging by its products, not unlike that of New Jersey. Some further correspondence with Massachusetts parties leads me to the conclusion that the above-named Russian Apples reached this country from English growers, who, in their turn, obtained them from Sweden, which was probably the reason for the assignment of the Red Astrachan to that country by Mr. Cole.

Of the above-named importations only three varieties, the Oldenburgh, Tetofsky and Red Astrachan, have had a wide distribution in America. It was soon discovered that the Oldenburgh and Tetofsky could be grown successfully much farther north than any other well-known sorts, and it was to these that the title of "Iron-clads" was applied; first, I think, in Minnesota, after one of the "test winters" of that region had cut off nearly every other sort of cultivated tree fruits.

At about the same time at which I became practically acquainted with this cold-resisting characteristic of these Russian Apples, disappointments in Wisconsin and Minnesota, resulting from the widespread destruction of many young orchards by severe winters, gave rise to a strong demand for a more thorough and extensive trial of the tree fruits of north-eastern Europe. Quite a number of Americans were at that time engaged in scientific and industrial service under the Russian Government, and through these a considerable importation was made on private account. Representations were also made to the national authorities; and after the expenditure of the usual amount of red tape, a large importation of Russian Apple-trees and cions was made, which on arrival were distributed from Washington. This distribution was made with so little judgment that more than half, perhaps as much as two-thirds, of the whole importation was lost. The cions which were sent direct to farmers were generally a total loss, as not one farmer in five hundred throughout the country has ever learned the simple art of grafting, which every farmer's boy should know by the time he is ten years old. But enough survived, and in time came to fruitage, to satisfy intelligent fruit-growers that here was a race of Apples quite new to America, and capable of far greater resistance to cold than the fruits of western Europe, which constituted our sole stock at that time, with the few exceptions noted above.

Newport, Vt. *T. H. Hoskins.*

Pelargoniums.

AT this season of the year no class of plants compares with Fancy Pelargoniums for decorative purposes in the greenhouse or conservatory. They are by far the most gorgeous of the Geraniaceæ, and no one having a greenhouse should be without them. They also make admirable window plants. For several years their cultivation has been much neglected in America, and even now, when they appear to be regaining some of their lost popularity, there is hardly a florist who catalogues more than two or three varieties, and these are usually not the best ones, so that the only way to secure a good selection is to import the plants. For market purposes, Pelargoniums have never been very popular, and it is surprising that they have not received more attention from florists. They are easily cultivated, and can be grown almost as cheaply as ordinary bedding Geraniums. Last year I persuaded a neighboring florist to grow a few dozens in five and six inch pots. The plants sold readily, and his customers were perfectly satisfied with their behavior as window or piazza plants. In England enormous quantities of Pelargoniums are grown for the large flower markets, usually in six-inch pots, and thousands of plants are sold each day in Covent Garden alone during the height of the season. Few cottagers in England or Scotland who grow window plants are without a Pelargonium. Owing to the cooler summer weather there, the plants do not bloom until September. In this country they are usually spent by July, but this gives two months of constant bloom, a much longer time than a Cineraria or Calceolaria lasts.

Cuttings inserted during September or October can be easily grown into nice specimens by the following May and flowered in six or eight inch pots. We place our cuttings in boxes of sand provided with ample drainage, and treat them in the same way as ordinary Geraniums. The plants should be grown in an airy house and kept well up to the light. Green aphis is their chief enemy, and to combat this we spread some tobacco stems among our plants and give a fumigation about once in ten days. The best time to give a thorough fumigation is just before the blooms start to open, as tobacco smoke causes most of the petals to drop.

Although young plants can be grown to sufficient size in one season for most purposes, older ones make fine specimens for a show-house. After the blooming period is over the plants can be stood outdoors and kept rather dry until the middle or end of August, when they may be pruned back. After pruning they should be watered freely at the root to encourage the plants to break, and when shoots an inch or more long have been made they can be shaken out and repotted into pots of the same size, or a size smaller than they were in before. The soil should be well shaken from the roots, and the roots themselves pruned back. The plants should not be exposed to cold rains or early frost. For compost we use two-thirds turfy loam and one-third well-dried cow-manure. Some bone-dust may also be advantageously mixed in, and a shovelful of sharp sand to each bushel of compost. If extra large specimens are desired the shoots must be well staked out. In England specimen plants are often three to four feet across, and the shoots are tied down to a wire or wooden circular frame above the top of the pot. Magnificent specimens of Pelargoniums are shown yearly, especially at the York and Manchester shows. Such plants, though displaying marvelous cultural skill, have a rather formal appearance, and more naturally grown specimens are preferable.

Pelargoniums are gross feeders, and liquid-manure can be as freely used as with Chrysanthemums. During the blooming period they require plenty of water. We place a saucer under each pot. If a plant gets thoroughly dry at the root a loss of foliage follows, and its appearance is spoiled. While flowering the portion of the house where the Pelargoniums are kept should be well shaded and be as cool as possible.

Of late years great improvements have been made in this class of plants, especially in the new hybrid semi-double sorts. These usually have seven and eight petals each, and last much better than the single ones. Good varieties of Pelargoniums are Mrs. R. Sandiford, Volonté nationale alba and Princess Teck, among whites; of colored ones the following are good: Madame Thibaut, Kingston Beauty, Dr. Masters, Triomphe de St. Mandé and Volonté nationale.

Taunton, Mass. *W. N. Craig.*

[Last year we saw some exceptionally well-grown Pelargoniums at the nurseries of Messrs. Turner, at Slough,

England, and also at one of the Regents Park exhibitions. At our request, Mr. Charles Turner sent photographs of several plants, one of which is reproduced on this page. This plant is not so completely covered with flowers as many of the others were, and for that reason it is rather more interesting, since the foliage which appears between the flowers gives them distinctness of outline, and helps them in every way by furnishing relief and contrast. The variety in the illustration is known as Amethyst, a very dwarf and floriferous sort. The top petals are deep maroon, beautifully edged, and the others are a rich purple.—ED.]

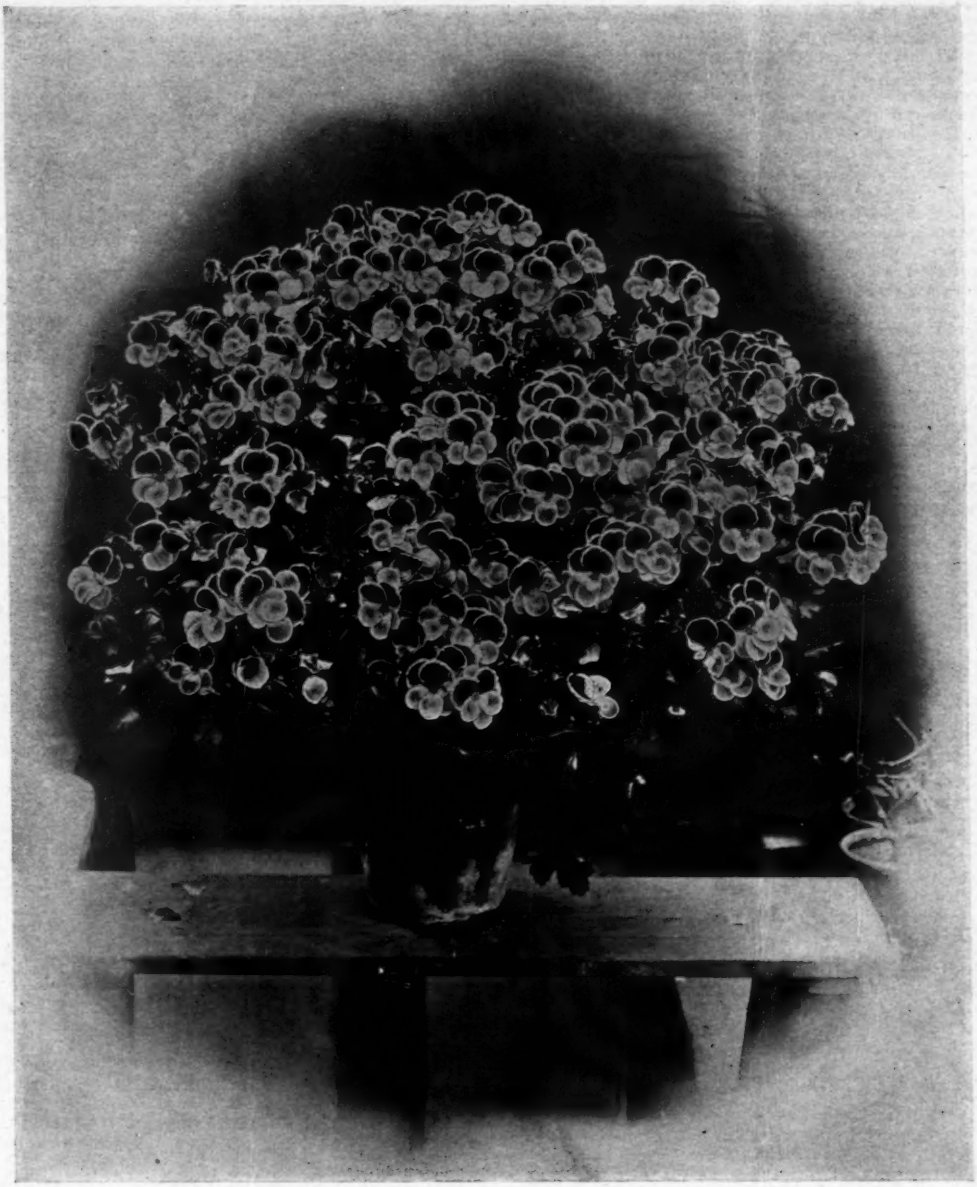

Fig. 34.—Pelargonium, Amethyst.—See page 226.

Miltonia vexillaria.

THE picture of a fine variety of this plant in GARDEN AND FOREST for May 15th reminds me of the ease with which this Orchid may be cultivated in American gardens. I was told by a distinguished English visitor the other day that we do this plant much better than they can in England, and this is remarkable in that the standard works on Orchids seem to insist on an equable temperature the year through, and it is the more surprising that with our extremes we can succeed so well with a plant enveloped in mists and rain for the greater part of the day in its South American home. We have one advantage over transatlantic cultivators in the tobacco-stems that are so easily obtained for the purpose of keeping down thrips, a pest to which Miltonia vexillaria is specially subjected. Our plants were infested when received, but a few dustings of tobacco in the axils of the leaves and tobacco-stems spread under and round the plants as they grew, soon cleared them of insects, and insured good, clean, healthy growth. This Miltonia is another of those Orchids that can be counted on to increase both in size and value each year. If carefully placed in the coolest house in the summer months, and at the cool end of the Cattleya house, where a temperature of fifty to fifty-five degrees can be obtained in winter, shaded from bright sunshine at all times, except in the depth of winter, they grow without difficulty.

After the flowering period the plants will need a little rest to recuperate, but water must not be withheld, and soon the young growths will start away, and this is the time to repot, which will be about September, when cool nights will insure a good start. For a potting compost we use moss and Fern-root, with a little dried cow-manure from the pasture. They seem to like this and manure-water at every second or third watering after the roots have begun to run through the potting material, but it should be applied well diluted.

There is no form of decoration to which these lovely flowers will not lend themselves, either as cut blooms or in the pots. The graceful, arching sprays of pink flower shades vary from a rich deep rose to the pure white of the unique "Fairy Queen," but even the common forms are beautiful enough for any garden. Many of our plants are producing four spikes from one bulb, and one of these single bulbs has forty-one flowers on the four spikes, so the free-flowering qualities of this Miltonia can hardly be overstated.

Another very fine Miltonia is M. Roezlii, and its white variety. The flowers of this plant are very fragrant and have the same outline as M. vexillaria, but it requires a warmer house than the latter, as it comes from a much lower elevation, from 1,000 to 2,000 feet, while M. vexillaria grows at an altitude varying from 4,000 to 7,000 feet above sea-level, so that it will easily be understood that a house at least ten degrees warmer in winter is necessary for M. Roezlii, otherwise it is of the same easy culture and flowers at the same time of year.

These two Miltonias used to be and are still known in catalogues as Odontoglossums, but of recent years they have been removed to the genus Miltonia with which they have a true affinity. Owing to the recent introduction of these plants there is a reasonable hope that other large-flowered forms of M. vexillaria will soon be obtainable.

South Lancaster, Mass. *E. O. Orpet.*

Some Herbaceous Perennials.

POLEMONIUM REPTANS is a native plant that is giving good satisfaction this year, and every little stem is loaded with flowers. It is eight or ten inches high, and its drooping beautiful blue flowers are produced in loose panicles. The spreading stems are well clothed with pinnate leaves, and give the plant a neat and compact habit. It grows well in ordinary garden-soil, and likes a position where it is not shaded by trees.

The Rocky Mountain Columbine, Aquilegia cœrulea, is one of the best in this genus. It is a choice perennial, and deserves more attention than some of our commoner forms. All the Columbines are graceful and beautiful, but this species is especially so. Its special beauty is in the nearly erect blue and white flowers. They are nearly three inches across, and the nearly straight, green-tipped spurs of the flower measure two inches in length. The plants grow to be twelve or fifteen inches high, and the leaves are large and biternate. A. cœrulea does well in the border or rockery. It is, however, not a long-lived plant; seed should, therefore, be sown annually, so that young plants may take the place of such as fail to come up in the spring.

On the north side of an Arbor-vitæ hedge a good strong plant of Orchis latifolia is now showing, as it has in succcessive springs, strong spikes of purple flowers. This plant does well in such a situation in deep rich moist soil. It does not like to be disturbed often, and when once established should not be moved for a number of years. It grows about fifteen inches high; its leaves are lanceolate, spotted with purplish black. The flowers of this English plant are produced in dense spikes, and they last for a considerable time.

Harvard Botanic Garden. *Robert Cameron.*

Correspondence.

Is Parsnip Poisonous?

To the Editor of GARDEN AND FOREST:

Sir,—In your issue of May 1st Dr. Halsted has some interesting notes on poisonous plants. What Dr. Halsted says in regard to poisoning from Cowbane, Cicuta maculata, is to the point. The cases of poisoning from this plant are so frequent, not only in this state, but elsewhere, that I have prepared a paper on the subject, which will soon appear in our station bulletin. I have looked up with considerable care cases of poisoning, and I have yet to learn of a case of fatal poisoning from Parsnip running wild or "Wild Parsnip," Pastinaca sativa. I have requested specimens, and have asked to receive information of authentic cases, but they have not turned up. We have the best of evidence that the plant is not poisonous. No one can question the evidence introduced by Professor Frederick B. Power,* whose careful scientific work along the lines of pharmacy is well known. Professor Power failed to find any poisonous substance in "Parsnips running wild"; boiled roots fed in considerable quantity to a cat showed no symptoms of poisoning. His associate, Dr. Cramers, insisted upon eating one-half of a raw parsnip which was sent to him from West Salem, Wisconsin, and which were supposed to cause the cases of poisoning in question, but no ill effects followed.

Again, Dr. Brown, of Sheboygan, Wisconsin, had prepared enough wild parsnips for a good dinner, which he ate, and, if I remember correctly, his whole family ate of it, but without any ill effects. Now, these Parsnips had been running wild for fifty years.

I have myself eaten raw parsnips "running wild," but could observe no injurious effects whatever. I have been trying in a limited way to demonstrate the non-poisonous properties of parsnip, and that people should especially guard against Cicuta maculata. I believe it is largely a myth that parsnip is poisonous. It is possible that some people may have peculiar idiosyncrasies for parsnip just as for celery, but to call the plant poisonous is a mistake.

Agricult'l College, Ames, Iowa. *L. H. Pammel.*

Agaves in Southern California.

To the Editor of GARDEN AND FOREST:

Sir,—In reference to the beautiful engraving of Agave Huachucensis, in your issue for May 8th, allow me to say that A. applanata has frequently bloomed during late years in southern Europe, and, as far as leaves and habit are concerned, it appears to be totally different from the subject of your picture. A. applanata is a larger plant, with a smaller number of leaves, which are nearly triangular in shape, of an ashy gray or whitish color, with strong decurrent dark red mucros and similar spines. Two-year-old plants of A. Palmeri, from seed received from the Missouri Botanic Garden, are certainly not to be confused either with A. applanata or with grown-up specimens of A. Parryi, received from the same source, and from Professor Toumey, of Tucson, Arizona, who writes that in his opinion A. Parryi and A. Huachucensis have been badly mixed together.

Every one who takes interest in the progress of botany and of practical horticulture in the United States will concur in your view that a large number of plants can be thoroughly studied only if grown in the open and in conditions similar to those of their natural homes. Such a station as suggested, or better still, something like an Arnold or a Shaw endowment, we ought to have in southern California, a location which offers so many advantages to growing in the open all sorts of plants from many climates. Meanwhile we are working steadily here to increase the nucleus of such a garden. Of the above-mentioned plants we have already of Agave thirty species; Fourcroya and Beschorneria, eleven species; Dasylirion, Beaucarnea and Nolina, seventeen; Yucca, fifteen; and among them such rare ones as Agave angustissima and A. parviflora (illustrated in GARDEN AND FOREST), A. vestita, from Guadalajara, A. Margaritæ, from Lower California, A. Franzosini and A. Henriquesii, recently described by Baker; Nolina Beldingi, from the extreme southern point of the Peninsula of California; Yucca gigantea and Y. Guatemalensis, from Central America. At the rate all plants are growing here it will not take many years for most of them to bloom and fructify, thus affording ample material for study and identification.

Santa Barbara, Calif. *F. Franceschi.*

At the South Orange Nurseries.

To the Editor of GARDEN AND FOREST:

Sir,—At a recent visit to the establishment of Mr. W. A. Manda I noticed, among other interesting plants in flower, Iberis sempervirens superba, which is apparently an exceptionally good variety of the hardy Candytuft. It was sent out by Backhouse, and has flowers of the purest white in dense heads, and the individual flowers are of good size. I. sempervirens is evergreen, more reliable for hardiness than I. Gibraltarica, and this variety is of a bushy habit, and evidently a fine subject for the garden. Mr. Manda had also in flower Campanula persicifolia alba grandiflora, which formidable name has been given to a superior form of this common Bellflower, which is too uncommon in hardy-plant gardens. The corollas of this variety were much deeper and more bell-shaped than those of the type, which is a favorite plant wherever grown.

*See *Pharm. Rundschau*, 1891, pp. 162–165. *Ibid.*, 1886, p. 161.

I found also in flower the attractive Genista Andreana, which, as GARDEN AND FOREST has before noted, is an improved Broom with large yellow flowers, having bright chestnut-colored wings, and of evergreen habit.

Erica pygmæa is a species of Heath not before seen by me. It forms a dense mat of dark green, scarcely rising above the surface of the ground, and later on covered with pleasing purple flowers. Good mat-plants are one of the attractions of the hardy garden, and where Heaths will thrive this distinct dwarf species should be a welcome plant. It seems to be of easy propagation by division. There were numerous other hardy plants in flower, mostly familiar subjects, and for a dense mass of brilliant yellow, Achillea tomentosa was noticeable.

The loss of Anemone Japonica seems to have been complete here last winter, and this, I think, has been the general experience in this section. Hypericum Moserianum, as usual, was badly cut down, but is now beginning to shoot at the base. This beautiful plant, I think, may now be considered root-hardy only in this section, and, therefore, classed among hardy herbaceous plants. Greenhouses, with the outside temperature of ninety degrees, are not places where one cares to linger, but I noticed, in a hurried review, that Mr. Manda's new hybrids of Rosa Wichuraiana were doing admirably, and were as vigorous as the type. These are crosses with some of the perpetual Roses, and have single or semi-double flowers of large size. R. gigantea, growing on a bench, I hope to see in flower and report on later. Some strong plants of Myrosma cannæfolium, which is being advertised as the white Canna, with most remarkable qualities, reminds me to ask whether any one has succeeded in flowering it. This plant was put out by Dammann in 1893, with most attractive claims. It is very obdurate in showing its flowers under any conditions of treatment. It is suspiciously like a Hedychium in habit and appearance, and its identity will be in question until it flowers.

Elizabeth, N. J. *J. N. Gerard.*

Meetings of Societies.

Meeting of the American and New Jersey State Forestry Associations.

THE idea of holding peripatetic forestry meetings, and combining instructive excursions with sessions for the discussion of topics with special relation to the regions traversed, was first carried out in August of last year, when the American Forestry Association met under the auspices of the New Hampshire Forestry Commission in the White Mountains. The success of that meeting, both from the social and forestal point of view, suggested a repetition this spring in southern New Jersey, where, with the formation of the South Jersey Woodmen's Association and the New Jersey State Forestry Associations, the movement for a rational treatment of the forest-cover of that state had just received its first impetus.

The meeting began with an evening session at Camden on May 15th, when Mr. B. E. Fernow delivered his richly illustrated lecture, "The Battle of the Forest," discussing the evolution of forest-growth, the forces of nature with which the forest has to contend in order to establish itself and the methods and means employed in this warfare, the evil results of improper partisanship on the part of man, by which not only is the forest resource itself decimated and deteriorated, but soil and water conditions are injured sometimes beyond redemption. Numerous views from this continent and from abroad illustrated the points made.

The next morning found the party on the way to Cape May, over the level sandy alluvial plains of southern New Jersey. The first observation of interest was, that on both sides of the railroad, about two rods away from the road-bed, there was roughly plowed a strip of land about a rod in width, a "safety strip" to protect the forest-growth against the spread of fire from the railroad. This precaution, which has been quite effectual, is a result of the intelligence of the adjoining property holders, who insisted on holding the railroad company responsible for damage in case of fire, and the company found it cheaper to prevent than to pay damages. Colonel Fox, Superintendent of the New York State Forests, who was of the party, stated that on the much-talked of Webb Road in the Adirondacks, another system had been successfully pursued during last summer: a hand-car with a crew and all necessary appliances to put out fires following each train.

If only the owners of forest-land had a proper conception of the value of their property and of the great damage which these fires inflict—to the soil more than to the timber—they would soon be able to get rid of this one source of conflagrations.

The forest-growth of this part of New Jersey is, to be sure, mostly not of immediate economic value, the heavy timber of the original growth which once covered these alluvial sands having been entirely removed from most parts long ago; a second growth has taken its place, mainly of various Oaks, Yellow Pine, Pinus rigida, and occasionally Red Cedar and Holly, supplanted by White Cedar in the wetter portions, repeatedly injured by fires, yet bound to maintain itself, and sometimes in quite thrifty condition. With the fires kept out, by a judicious use of the axe, gradually culling out the inferior kinds and giving advantage to the better classes of timber, these abused areas would, without hardly any outlay, in twenty-five or thirty years become a valuable property. A basket factory, using Sweet Gum, and a sash, door and blind factory, using White Cedar, both situated along this line, give evidence that even now, at some distance from the road, virgin forest-supplies are not entirely exhausted, while the thrifty surroundings of Vineland and of the Russian colony established by Baron von Hirsch show the capabilities of the soil under careful cultivation.

At Cape May the party enjoyed an afternoon stroll on the beach and an exchange of experiences and opinions regarding forestry problems. In the evening an attentive audience listened to an address by Mr. E. A. Bowers, Assistant Commissioner of the General Land Office, on the conditions of the Government forests and the duty of the Federal Government with regard to them. Mr. Bowers took the position that every citizen was a part owner, and hence interested financially in the great national timber domain situated on the western mountains, in a region which for its prosperity is dependent largely on irrigation, and hence on the storage of water-supplies under the forest-cover.

Friday morning saw the party early on their way to Atlantic City. The forestry feature of interest en route was the sand dunes of Seven-mile Beach, below Avalon, which were visited by special train, kindly furnished by the Pennsylvania Railroad Company. The problem of the sand dunes could here be studied in all its phases. The forest-cover once removed from the shore, the light sand is given over to the play of the winds, which drive it landward, and a wall of sand twenty to thirty feet in height is thus gradually moved, progressing from year to year more or less rapidly. A small strip of forest-growth two hundred yards or so from the shore is now impeding its progress, and yet the dune is said to advance at the rate of one foot a year, covering this protective belt. The sand wall is some twenty-five feet high, with a slope of about forty feet on the leeward side encroaching on the timber, which consists of White Holly, Ilex opaca, over one hundred and fifty years old, and Red Cedar, with occasionally a Sassafras, an Oak or a Wild Cherry intermixed. The timber is only thirty-five feet high; the sharp sand particles driven by the wind cut off and shear like a hedge the tops of the trees, which are hardly ten feet above the highest level of the dune. It is interesting to note how long some of the submerged trees can retain their vitality, Cedar and Hollies, covered up within ten feet of their tops, still showing life, while the Oaks and Sassafras are dead and crumbling, and the Cherries have shed their seed, giving rise to a new generation on the dune itself.

Where the forest has been removed the action of the wind reaches farther inland, but where the forest-barrier is intact the dune seems to have become quiet enough to allow a natural cover of Sand Grasses to establish itself, which may in time stop its further shifting. Since, however, the land belongs to a real-estate boom company, it is likely that the lots will be considered too valuable to keep the tree-growth intact, and its kindly offices unappreciated, it may have to go as elsewhere, with the assurance that the lots themselves, with houses and improvements, will gradually be drowned in the sand. Even the bathing-beach, which in such places is usually the only attraction, has in many places been spoiled, the sand being blown off and a muddy bottom remaining. The intimate relation of forest-cover to almost all other kind of business was here strikingly suggested, just as on the plains and in northern New Jersey the needs of the city of Philadelphia and other cities and towns for desirable supplies of drinking-water would have suggested the close interest of their citizens to the forest-conditions of those regions.

A beautifully illustrated lecture by Professor J. T. Rothrock formed the feature of the session at Atlantic City. The lecturer spoke of the habits, habitat and value of various forest-trees of eastern states, and laid special stress on the fact that forest-growth was destined to be relegated to the agriculturally poor soils and situations.

Owing to rain it was decided to postpone the sessions at Lakewood to a more favorable season, when it might be possible to arrange for a continuation of the trip through the

northern part of the state. Suitable resolutions of thanks were passed to those who had contributed toward the success of the meeting, notably to Mr. John Gifford, whose good nature and pleasant courtesy was never ruffled by disappointments.

Notes.

London is constantly adding to its park area, and Lincoln's Inn Fields has at last been secured as public property, and is to be transformed into a public playground. The price paid for this area was twelve thousand pounds down, and a pound a year rent for the remainder of the time for which the lease of the Fields has still to run—a period of some 600 years.

The United States Consul at Messina reports that from November to the middle of March the export of oranges from that port was about 340,000 boxes against only 95,000 boxes the year before, and taking the season through considerably more than four times as many oranges were probably sent to the United States as were shipped the previous year. Of course, this increase was due to the failure of the Florida orange crop.

Mr. J. H. Hale writes to the *Fruit Trade Journal*, that after a careful inspection of 100,000 Peach-trees in his orchard, he finds no trace of disease or insect, so that the promise of perfect fruit from Georgia is fair. The dropping of the fruit is all over, and in some cases nature has thinned a little too much, although generally it is necessary to do more thinning, an operation which is essential if first-class fruit is to be secured.

It is estimated that in Georgia, Alabama and Florida about 22,000 acres of land will be planted to Water Melons. This means, with a favorable season, that 10,000 car-loads of melons will be shipped, and since an average freight train is composed of twenty cars, five hundred train-loads or more must be moved, which will make an average of twelve trains every day in the week for six weeks. Altogether, it will require unusual activity to get these millions of melons started on their journey to northern markets.

The Globe flowers, which range in color from the palest citron or almost white to deep orange, need no commendation as they are now to be found in almost every garden of hardy herbaceous plants. According to *The Gardeners' Chronicle*, Dr. Stuart, of Chirnside, Scotland, has succeeded in crossing Trollius Europeus on our American wild Trollius, which does not deserve the name of Globe Flower, since the pale greenish yellow sepals do not incurve, nor is the flower at all showy. Some of these crosses, however, are said to be remarkable, since they are of large size, of a deep color, and so double that they are said to look like orange-colored Roses.

Sugar corn from Bermuda now costs fifty cents a dozen ears; peppers from New Orleans, which have been coming in for a week, seventy-five cents a dozen, and large egg-plants from Florida seventy-five cents each. Mushrooms, on account of the plentiful supply due to the hot weather, fell within a week from $1.50 to thirty-five cents a pound. They sold on Monday for sixty cents. South Carolina now supplies okra; Maryland, Virginia and New Jersey are sending peas, and Long Island furnishes beets and carrots. The scarcity of vegetables several weeks ago after the unseasonably cold weather led to various experiments, and yesterday some hot-house tomatoes arrived from the Isle of Guernsey, too late to command the highest prices.

A bulletin on Chrysanthemums has been prepared by Michael Barker, of the Cornell Experiment Station. It is chiefly a record of the habit of the leading varieties on the market in 1894, and it gives an account of the behavior of the more prominent ones of the two hundred kinds tested. The report is written from the standpoint of the florist rather than of the amateur gardener. Mr. Barker concludes that for the purposes of American growers American varieties are superior, as a rule, to those of foreign origin. The best ones tested at Cornell for commercial purposes, among the yellow varieties, were Eugene Dailledouze and Major Bonnaffon; white, Mayflower and Marie Louise; pink, Mrs. E. G. Hill and Laredo; bronze, Charles Davis and Ingomar.

European critics, according to their mood, have long pitied or scorned American architecture for its persistent use of wood as a building material, even in structures of considerable size and pretension. It is curious to find, therefore, that wooden buildings of certain sorts are now becoming the fashion in England, where cheapness does not recommend them as it does in this country. The new move has been inspired, however, not by the example of America, but by that of Scandinavia, where many fine old public buildings and churches, as well as private houses, are wholly constructed of wood. The Prince of Wales, we are told, is interested in an Anglo-Norwegian company created to bring wooden structures into fashion in Great Britain, and is having a number of picturesque examples, in the way of houses and lodges, erected on his own estates at Sandringham, and the greater part of Mar Lodge, the autumn residence of his daughter, the Duchess of Fife, has been constructed of wood.

In *The Speculum*, a journal published by the Michigan Agricultural College, Professor Beal gives a history of eleven trees which were planted on Arbor Day, 1887 with a good deal of ceremony. There were elaborate exercises in the chapel; the trees were planted, one in memory of each of the four classes, the different fraternities, the baseball nine, etc., and the President of the college, as the procession passed from tree to tree and saw that they were properly placed, guaranteed that each one should be well cared for. Professor Beal takes up the history of each tree, and in summing up their present condition finds that only three of them are thrifty, four are feeble, three are quite dead and one is about to die. None of the living ones are marked by any label, nor is the history of any of them to be found in the report of the President or in the college paper. Judging from this, Professor Beal is probably right in saying that the chief value of an arbor day, such as the one celebrated in 1887 at the Michigan Agricultural College, was sentimental and that the sentiment was ephemeral.

One of the most attractive floral displays ever made in an American garden was seen in the Arnold Arboretum last week, when the Lilacs were in bloom. About one hundred and twenty varieties of Syringa vulgaris were in flower. The collection occupies a wide bed, stretching for more than nine hundred feet up a rather steep slope, along one of the principal drives, and the color of the flowers is well brought out by a high green slope behind and parallel with the bed. Among the most attractive of the varieties in this collection are Marie Lagrange, white; Rubra insignis, dark red-purple; Trianoniana, purple; Madame Briot, red-purple; Geheimath Heyder, pale reddish blue (very large compact panicle); Alba grandiflora, white; Charles X., dark red-purple (an old variety, but still one of the very best); Emil Liebeg, pale blue; Bertha Dammann, white; Virginalis, white; Ambroise Verschaffelt, flesh color; Gigantea, mauve; Carsli, dark purple-red; Maxime Cornu, pale blue (double); A. Lavallée, pale blue (double); Lamarck, pale blue (double); Ludwig Späth, dark red-purple (very late); Philamon, dark red-purple; Alice Macguery, purple-red; La Tour d'Auvergne, dark red-purple (double, very large compact panicle); Félicité, pale flesh color (semi-double); Madame Moser, white; Tournefort, dark purple in the bud, opening bright blue (double).

Large and bright purple-black Tartarian cherries, from California, cost at retail twenty-five cents a pound, while immense cherries known as Centennial, almost equal in size to the apricots now coming from that state, cost forty cents. This showy variety is a California seedling fruited for the first time in 1876. It is of an amber color, freely splashed with dark crimson. Its meaty flesh is remarkably sweet and of excellent flavor, and while the fruit is juicy it has the good market qualities of keeping well and of carrying in good order. The best of several small lots of cherries from North Carolina compare unfavorably with those from California, the highest price for these being twenty cents a pound. California peaches have already been seen here in small advance lots, a box containing eighty fruits selling for $4.00 at wholesale. The season for citrus fruits from the Pacific slope is nearly ended, and as they come in refrigerator-cars they quickly melt when exposed to the heat. The few Mandarins remaining in the retail fruit-stores are offered at thirty cents, selected Navel oranges at sixty to seventy-five cents, and large shaddocks at $2.00 a dozen. Huckleberries from North Carolina are quite plentiful and of fair quality for the time of year; the best bring twenty-five cents a quart. A few native plums and some peaches came from Georgia last week, but were not sufficiently ripe to bring good prices. Muskmelons are coming from Florida, but very few of them are of the best quality. Except occasional lots of Russets from the interior of New York state, no more apples are likely to arrive. The barrel stock on hand is being divided into baskets holding something more than a half bushel. Ben Davis is the latest red apple offered.